

PATENT COOPERATION TREATY
PCT
INTERNATIONAL PRELIMINARY EXAMINATION REPORT
(PCT Article 36 and Rule 70)

Applicant's or agent's file reference PCTP171499A	FOR FURTHER ACTION See Notification of Transmittal of International Preliminary Examination Report (Form PCT/IPEA/416)	
International application No. PCT/NL 03/00926	International filing date (day/month/year) 23.12.2003	Priority date (day/month/year) 23.12.2002
International Patent Classification (IPC) or both national classification and IPC B29D30/42		
Applicant VMI EPE HOLLAND B.V. et al.		

1. This international preliminary examination report has been prepared by this International Preliminary Examining Authority and is transmitted to the applicant according to Article 36.

2. This REPORT consists of a total of 10 sheets, including this cover sheet.

This report is also accompanied by ANNEXES, i.e. sheets of the description, claims and/or drawings which have been amended and are the basis for this report and/or sheets containing rectifications made before this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions under the PCT).

These annexes consist of a total of 10 sheets.

3. This report contains indications relating to the following items:

- I Basis of the opinion
- II Priority
- III Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
- IV Lack of unity of invention
- V Reasoned statement under Rule 66.2(a)(ii) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
- VI Certain documents cited
- VII Certain defects in the international application
- VIII Certain observations on the international application

Date of submission of the demand 22.07.2004	Date of completion of this report 06.05.2005
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I. Basis of the report

1. With regard to the **elements** of the international application (*Replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report since they do not contain amendments (Rules 70.16 and 70.17)*):

Description, Pages

1-23 as originally filed

Claims, Numbers

1-40 received on 21.04.2005 with letter of 20.04.2005

Drawings, Sheets

1/8-4/8, 6/8-8/8 as originally filed
5/8 received on 21.04.2005 with letter of 20.04.2005

2. With regard to the **language**, all the elements marked above were available or furnished to this Authority in the language in which the international application was filed, unless otherwise indicated under this item.

These elements were available or furnished to this Authority in the following language: , which is:

- the language of a translation furnished for the purposes of the international search (under Rule 23.1(b)).
- the language of publication of the international application (under Rule 48.3(b)).
- the language of a translation furnished for the purposes of international preliminary examination (under Rule 55.2 and/or 55.3).

3. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application, the international preliminary examination was carried out on the basis of the sequence listing:

- contained in the international application in written form.
- filed together with the international application in computer readable form.
- furnished subsequently to this Authority in written form.
- furnished subsequently to this Authority in computer readable form.
- The statement that the subsequently furnished written sequence listing does not go beyond the disclosure in the international application as filed has been furnished.
- The statement that the information recorded in computer readable form is identical to the written sequence listing has been furnished.

4. The amendments have resulted in the cancellation of:

- the description, pages:
- the claims, Nos.:
- the drawings, sheets:

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5. This report has been established as if (some of) the amendments had not been made, since they have been considered to go beyond the disclosure as filed (Rule 70.2(c)).
(Any replacement sheet containing such amendments must be referred to under item 1 and annexed to this report.)
6. Additional observations, if necessary:

III. Non-establishment of opinion with regard to novelty, inventive step and industrial applicability

1. The questions whether the claimed invention appears to be novel, to involve an inventive step (to be non-obvious), or to be industrially applicable have not been examined in respect of:
 - the entire international application,
 - claims Nos. 39,40
because:
 - the said international application, or the said claims Nos. relate to the following subject matter which does not require an international preliminary examination (specify):
 - the description, claims or drawings (*indicate particular elements below*) or said claims Nos. 39,40 are so unclear that no meaningful opinion could be formed (*specify*):
see separate sheet
 - the claims, or said claims Nos. are so inadequately supported by the description that no meaningful opinion could be formed.
 - no international search report has been established for the said claims Nos.
2. A meaningful international preliminary examination cannot be carried out due to the failure of the nucleotide and/or amino acid sequence listing to comply with the standard provided for in Annex C of the Administrative Instructions:
 - the written form has not been furnished or does not comply with the Standard.
 - the computer readable form has not been furnished or does not comply with the Standard.

IV. Lack of unity of invention

1. In response to the invitation to restrict or pay additional fees, the applicant has:
 - restricted the claims.
 - paid additional fees.
 - paid additional fees under protest.
 - neither restricted nor paid additional fees.
2. This Authority found that the requirement of unity of invention is not complied with and chose, according to Rule 68.1, not to invite the applicant to restrict or pay additional fees.
3. This Authority considers that the requirement of unity of invention in accordance with Rules 13.1, 13.2 and 13.3 is

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complied with.
 not complied with for the following reasons:

see separate sheet

4. Consequently, the following parts of the international application were the subject of international preliminary examination in establishing this report:

all parts.
 the parts relating to claims Nos. 1-30.

V. Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. Statement

Novelty (N)	Yes:	Claims	1-30
	No:	Claims	
Inventive step (IS)	Yes:	Claims	1-30
	No:	Claims	
Industrial applicability (IA)	Yes:	Claims	1-30
	No:	Claims	

2. Citations and explanations

see separate sheet

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Re Item III

Non-establishment of opinion with regard to novelty, inventive step and industrial applicability

1. Claims 39 and 40 contain references to the description and the drawings. According to Rule 6.2(a) PCT, claims should not contain such references except where absolutely necessary, which is not the case here.

Re Item IV

Lack of unity of invention

1. This Authority considers that there are two inventions covered by the claims indicated as follows:

I: Claims 1 - 30 directed to an apparatus and a method for producing a breaker ply comprising a controlling device and a process step for adjustably moving the ply support surface of the ply transport device in accordance with the actual length of the ply being measured during its manufacturing.

II: Claims 31 - 38 directed to an apparatus for producing two breaker plies comprising two cutting devices having their cutting lines parallel one to the other.

The reasons for which the inventions are not so linked as to form a single general inventive concept, as required by Rule 13.1 PCT, are as follows.

2. The prior art has been identified as document D1 (= EP 1095761 - A) and discloses:

an apparatus and a method for producing a breaker ply comprising a controlling device and a process step whereby the mutual distance of the bands, placed adjacent one to another in order to obtain a breaker ply of a predetermined length, is adjusted a priori.

3. The technical features of claims 1 - 30 which make a contribution over the prior

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art and can be considered as special technical features within the meaning of Rule 13.2 PCT are:

the provisions of a controlling device for, and of a process step of moving in a controlled manner the ply support surface of the ply transporting device, depending on the actual length of the ply being measured during its manufacturing.

4. The problem solved by these special technical features can therefore be construed as:

improving the accuracy and uniformity of the completed tyre breaker ply thanks to the repetitive measurements, recalculations and adjustments of the ply transporting device carried out every time a new band is placed adjacent to the previous one.

5. The technical features of claims 31 - 38 which make a contribution over the prior art and can be considered as special technical features within the meaning of Rule 13.2 PCT are:

the provision of two cutting devices having their cutting lines parallel one to the other.

6. The problem solved by these special technical features can therefore be construed as the following:

a more compact arrangement of the belt ply production station and a faster production cycle is achieved because only one extrusion device can be used to produce two breaker plies substantially at the same time.

7. Comparing the content of paragraphs 3 with 5 and 4 with 6 respectively, it is evident the difference between the special technical features of the two groups of claims and the lack of corresponding technical effect as well.

8. Consequently, neither the objective problem underlying the subjects of the claimed inventions, nor their solutions defined by the special technical features allow for a relationship to be established between the said inventions, which involves a single general inventive concept.

The application, hence does not meet the requirements of unity of invention as defined in Rules 13.1 and 13.2 PCT.

Re Item V

Reasoned statement with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. Remarks on the lack of clarity of certain claims, Art. 6 PCT.

Throughout the claims a certain number of mistakes, inaccuracies and confusing expressions have been remarked, which render the comprehension of the claims rather cumbersome.

They are listed below and, when possible, a plausible interpretation is given.

- 1.1 In claim 1, the expression "first operator" has been interpreted as "first control device" (and not as a person): this is derivable from the description at page 5 lines 14-24. The same considerations apply to claims 2, 4-6 and 11.
- 1.2 Dependent claim 22, when considered in combination with claims 21, 20 and 1, is not clear because there is a reference to a "placement device", which has not been defined in any of the said claims 21, 20 and 1.
- 1.3 Although claims 23 and 26 have been drafted as separate independent claims, they appear to relate effectively to the same subject-matter and to differ from each other only with regard to the definition of the subject-matter for which protection is sought and in respect of the terminology used for the features of that subject-matter. The aforementioned claims therefore lack conciseness and as such do not meet the requirements of Article 6 PCT.
- 1.4 The formulation of claims 24 and 25 as dependent on themselves is meaningless; it seems reasonable to interpret:
 - claim 24 as dependent on claim 23, and
 - cl. 25 dependent on cl. 24.

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1.5.1 The subject-matter of independent claims 1, 23 and 26 respectively relates to an apparatus for, and to methods of manufacturing a breaker ply by:

- cutting a continuous rubber strip containing cords into a plurality of bands having a certain length, and
- joining side by side a certain number of said bands to form a breaker ply having a certain length.

1.5.2 However, these claims fail to explicitly disclose either the provision of a joining device (e.g. a splicer) or the provision of a joining step, for joining the said bands together to form a breaker ply: these features are considered essential to the definition of the invention.

1.5.3 Since independent claims 1, 23 and 26 do not contain these features, they do not meet the requirement following from Article 6 PCT taken in combination with Rule 6.3(b) PCT, that any independent claim must contain all the technical features essential to the definition of the invention.

1.5.4 However, for the examination purpose, these claims have been interpreted as implicitly disclosing respectively a joining device (e.g. a splicer) and a joining step, for joining the bands together to form a breaker ply.

2. State of the Art

Reference is made to the following document: D1: EP 1095761 - A.

3. Claim 1

3.1 The document D1 is regarded as being the closest prior art to the subject-matter of claim 1 and discloses (the references in parentheses applying to this document): "a device for producing a breaker ply (3) comprising:

- an extrusion device (15) for producing at least one continuous rubber strip (1) having substantially mutually parallel embedded longitudinal cords (11) having a centre-to-centre distance and having a strip width;
- a first transport device (16) for transporting the continuous rubber strip in the direction of the longitudinal cords;
- a second transport device (20) for transporting the breaker ply (3) in the longitudinal direction of the breaker ply in a transport direction, comprising a support surface for the breaker ply;
- a cutting device (17) for cutting bands from the continuous strip (1) diagonally at the cord angle;
- a building drum (41) for receiving the breaker ply (3) coming from the second transport device (20), wherein the building drum has an axis of rotation,
- wherein the first transport device (16) is adapted for transporting the continuous strip to the second transport device (20), the second transport device is positioned with its transport direction at an angle having the size of a cord angle to the direction of the longitudinal cords, the longitudinal direction of the breaker ply substantially corresponds to the transport direction, and the building drum (41) is positioned with its axis of rotation substantially transverse to the second transport direction".

See D1, figure 1 and the relevant passages in the description.

3.2 The subject-matter of claim 1 differs from D1 in the additional provisions of a controlling device (in the claim defined as "a first operator") for adjustably moving the breaker ply support surface of the second breaker ply transporting device, essentially depending on the actual length of the breaker ply being measured during its manufacturing.

The subject-matter of claim 1 is therefore new (Article 33(2) PCT).

3.3 The problem solved by this distinguishing feature can therefore be construed as: improving the accuracy and uniformity of the completed tyre breaker ply thanks to the repetitive measurements, recalculations and adjustments of the breaker ply transporting device, which are carried out every time a new band is placed adjacent to the previous one.

3.4 The problem underlying the present application has not been acknowledged by the

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available prior art; the solution proposed by claim 1 is neither known from, nor rendered obvious by, the available prior art.

Therefore, claim 1 is considered as involving an inventive activity according to Article 33(3) PCT.

4. Claims 23 and 26

4.4 The subject-matters of independent method claims 23 and 26 differ from D1 in the provision of the following additional process steps:

- measuring the actual length of the breaker ply during its manufacture, i. e. every time a new band length is joined to the previous one to form the breaker ply, and
- adjustably moving the ply support surface of the ply transporting device in accordance with the measured actual length of the ply.

The subject-matter of claims 23 and 26 is therefore new (Article 33(2) PCT).

4.5 The same considerations as at points 3.3 and 3.4 above can be applied to justify the inventiveness of claims 23 and 26 according to Article 33(3) PCT.

5. Dependent claims 2 - 22, 24, 25, 27 - 30

Claims 2 to 22 are dependent on claim 1, claims 24 and 25 are dependent on claim 23, and claims 27 to 30 are dependent on claim 26: all these claims, as such, also meet the requirements of the PCT with respect to novelty and inventive step.